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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ERIC KUO,
Appellant

Appeal 2009-2294
Application 10/612,239¹
Technology Center 3700

Decided²: May 6, 2009

Before CAROL A. SPIEGEL, LORA M. GREEN, and
RICHARD M. LEBOVITZ, *Administrative Patent Judges*.

SPIEGEL, *Administrative Patent Judge*.

DECISION ON APPEAL

¹ Application 10/612,239 ("the 239 application"), *Dental Appliance Sequence Ordering System and Method*, was filed 1 July 2003. The real party in interest is ALIGN TECHNOLOGY, INC. (Appellant's Brief Under 37 C.F.R. § 41.37, filed 13 December 2007 ("App. Br."), at 3).

² The two month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, begins to run from the decided date shown on this page of the decision. It does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

I. Statement of the Case

Appellant appeals under 35 U.S.C. § 134 from an Examiner's final rejection of claims 19-21, 27-29, and 38-48.³ Claims 1 and 37, the only other pending claims, have been indicated as allowable (App. Br. 4; Ans.⁴ 2). We have jurisdiction under 35 U.S.C. §§ 6(b) and 134. We AFFIRM.

The subject matter on appeal is directed to a system comprising a plurality of dental appliances for repositioning teeth, such as clear polymeric braces, which are marked in a non-numeric manner, on the appliances and/or on packaging therefore, to indicate the order in which the appliances are used. Claims 19, 27, and 44 are illustrative and read (App. Br. 27-30):

19. A system of dental appliances comprising:
a plurality of dental appliances to be worn
by a patient to provide dental treatment, each of
the plurality of dental appliances having cavities
shaped to receive and resiliently reposition teeth
from one arrangement to a successive
arrangement;

a framework, wherein each of the plurality
of dental appliances are removably attached to a
portion of the framework; and

a non-numeric indicia designating an order
in which each of the plurality of dental appliances
are to be worn by a patient to provide dental
treatment.

27. A package of dental appliances comprising:
a package containing a plurality of
geometrically distinct dental appliances positioned
in an arrangement within the package which

³ In an Advisory Action mailed 7 August 2007, the Examiner entered an amendment, filed 24 July 2007, canceling claims 14-16 and 30-36.

⁴ Examiner's Answer mailed 10 March 2008 ("Ans.").

indicates an order of usage, the plurality of dental appliances comprising a plurality of geometrically distinct successive appliances having cavities and wherein the cavities of successive appliances have different geometries shaped to receive and reposition teeth from an initial arrangement toward a successive arrangement.

44. A system of dental appliances comprising:
a plurality of dental appliances comprising color indicia designating an order in which each of the plurality are to be worn by a patient to provide dental treatment, each of the plurality of dental appliances having cavities shaped to receive and resiliently reposition teeth from one arrangement to a successive arrangement, wherein the color indicia comprises a dissolvable dye.

The non-numeric indicia may comprise a pattern of one or more cutouts (claim 38) or a computer readable element (claim 40), e.g., a barcode (claim 41) or a radiofrequency tag (claim 43), marked on the appliance itself. In other embodiments, non-numeric indicia, e.g., as color, may be marked on a peel-away wrapper removably attached to the appliance (claim 47). Alternatively, the non-numeric indicia may comprise a packaging that dispenses the appliances in order of use, e.g., a packaged stack of appliances which dispenses the appliances one by one (claim 29) or a plastic frame to which the appliances are removably attached in order of use (claim 48).

The Examiner has rejected the pending claims as unpatentable under 35 U.S.C. § 103(a) as follows:⁵

- (i) claims 19-21 and 48 over Chishti⁶ in view of Klein⁷;

⁵ The Examiner withdrew the rejection of claims 45 and 46 under 35 U.S.C. § 112, first paragraph (enablement) (Ans. 2).

- (ii) claims 27-29 over Chishti in view of Klatt⁸;
 - (iii) claims 38 and 39 over Chishti in view of Wong⁹ and Rohlcke¹⁰;
 - (iv) claims 40 and 41 over Chishti in view of Wong and Martin¹¹;
 - (v) claims 42 and 43 over Chishti in view of Wong, Martin, and Morris¹²;
 - (vi) claims 44 and 47 over Chishti in view of Wong; and,
 - (vii) claims 45 and 46 over Chishti in view of Wong and Bates¹³
- (Ans. 3-7).

The Examiner found that Chishti discloses appliances marked or associated with *non-numeric* indicia, rather than the claimed numeric indicia, to indicate the order in which the appliances are used (Ans. 3-7). The Examiner contends that it would have been obvious to substitute functionally equivalent *non-numeric* indicia, including packaging which

⁶ U.S. Patent 5,975,893 C1, *Method and System for Incrementally Moving Teeth*, issued 2 November 1999, to Chishti et al. and reissued 26 August 2008 ("Chishti").

⁷ U.S. Patent 4,038,753, *Orthodontic Apparatus Including Unitary Dispenser and Dispensed Articles*, issued 2 August 1977, to Paul E. Klein ("Klein").

⁸ U.S. Patent Application Publication 2003/0136698 A1, *Medicinal Product Package for Eradication Therapy*, published 24 July 2003, based on application 10/297,257, filed 23 June 2001, by Andreas Klatt ("Klatt").

⁹ U.S. Patent 6,206,695 B1, *Step-Back Eliminating Tapered Dental Cutting Instruments for Improved Root Canal Treatment and Method*, issued 27 March 2001, to Wong et al. ("Wong").

¹⁰ U.S. Patent 5,326,259, *Marked Orthodontic Aid and Method of Manufacturing*, issued 5 July 1994, to Rohlcke et al. ("Rohlcke").

¹¹ U.S. Patent 6,884,071 B2, *Mixing Capsule*, issued 26 April 2005, to Mathias Martin ("Martin").

¹² U.S. Patent 5,923,001, *Automatic Surgical Sponge Counter and Blood Loss Determination System*, issued 13 July 1999, to Morris et al. ("Morris").

¹³ U.S. Patent 5,411,295, *Tamper-Evident Label*, issued 2 May 1995, to Bates et al. ("Bates").

dispenses items in a sequential fashion, for the numeric indicia used by Chishti to indicate the order of use of the dental appliances.

Appellant argues that although non-numeric indicia is known in the prior art, such as Wong, the prior art does not teach or suggest using non-numeric indicia to convey information regarding the order of use of anything (App. Br. 17-25), that Klein discloses alpha-numeric indicia, not non-numeric indicia (App. Br. 12-16), and that Klatt does not disclose dispensing a stack of geometrically distinct dental appliances (App. Br. 15-17).

Thus, the issues before us are whether Appellant has shown the Examiner erred in concluding (1) that non-numeric indicia is functionally equivalent to numeric indicia for purposes of indicating the order of use of dental appliances as disclosed by Chishti; (2) that the alpha-numeric indicia of Klein suggests the functional equivalence of numeric and non-numeric indicia; and (3) that packaging which dispenses identical articles in order as taught by Klatt suggests packaging which dispenses dental appliances in the order of their use as claimed.

II. Findings of Fact ("FF")

The following findings of fact are supported by a preponderance of the evidence of record.

- [1] Chishti discloses a system comprising a series of dental appliances having cavities configured to receive and incrementally reposition individual teeth from an initial position to a final position (Chishti 2:62-3:17).
- [2] According to Chishti, "[t]he appliances will be marked in some manner, typically by sequential numbering directly on the appliances or on tags, pouches, or other items which are affixed to or which

- enclose each appliance, to indicate their order of use" (Chishti 15:1-5).
- [3] Klein discloses forming a framework, i.e., a dispensing carrier, on which orthodontic appliances may remain until time for their use, formed by introducing a path or trough in a mold through which resin is introduced to form the appliances (Klein 1:14-20; 4:3-8).
 - [4] According to Klein, while a given framework will ordinarily carry only devices of one specific type and size, different types of devices may also be provided on the framework, along with appropriate markings, e.g., "A-1-REG.," identifying the types and sizes of the devices (Klein 2:26-33; 4:9-19; fig. 1).
 - [5] Further according to Klein, as successive devices are removed from the framework, it may be desirable to cut off the remaining portion of the framework which projects beyond any remaining devices (Klein 4:47-52).
 - [6] Klatt discloses a medicinal product package comprising (a) a multiplicity of blister cards disposed in a stack and arranged in the order of their use and (b) a container having an access for removing the blister card lying at the bottom of the stack (Klatt ¶ 6).
 - [7] Wong teaches that endodontic files or "reamers" used for root canals are identified by an ISO (International Standard Organization) color code according to the diameter of the reamer (Wong 2:5-66).
 - [8] According to Wong, a dentist typically begins a root canal using a size 10 "purple" reamer, then removes additional material using a size 15 "white" reamer, followed by the next larger size, e.g., a size 20

- "yellow" reamer, a size 25 "red" reamer, etc. until the root tip is reached (Wong 2:7-13, 41-53).
- [9] According to Rohlcke, it is known to mark individual orthodontic aids, e.g., brackets or bands, using color or mechanical markings, e.g., notchings, in order to identify their orientation and allocation to individual types of teeth (Rohlcke 1:13-24).
- [10] According to Martin, mixing capsules for dental materials may be coded with one or more color markings, e.g., a color label, or electronically legible markings, e.g., a bar code, to provide various information about the capsule, including the mixing time, the material, the manufacturer and/or the expiration date (Martin 1:7-11; 7:24-29).
- [11] According to Morris, radio frequency tags operate by proximity, as opposed to bar codes which operate by optics, and, therefore, may be read in harsh environments, submerged in liquids, and from any direction through most materials, including tissue, bone, etc. (Morris 2:39-56).
- [12] In particular, Morris uses radio frequency identification tags on surgical sponges (Morris 2:65-3:3:1).
- [13] Bates discloses applying water-soluble indicia to the surface of a substrate to provide identifying information, e.g., the label or product manufacturer (Bates 2:5-10).

III. Discussion

A. Legal principles

"Section 103 forbids issuance of a patent when 'the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406, 127 S. Ct. 1727 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, (3) the level of skill in the art, and (4) where in evidence, so-called secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). In *KSR*, the Supreme Court reaffirmed principles based on its precedent that “[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *KSR*, 550 U.S. at 416. The Court emphasized that “rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness” *id.* at 418. (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)). However, “the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *Id.* Thus, “[i]n considering motivation in an obviousness analysis, we ask ‘whether a person of ordinary skill in the art, possessed with the understandings and knowledge reflected in the prior art, and motivated by the general problem facing the inventor, would have been led to make the combination recited in the claims.’” *Optivus Tech., Inc. v. Ion Beam Applications S.A.*, 469 F.3d 978, 990 (Fed. Cir. 2006) (citing *In re Kahn*, 441 F.3d at 988). “Non-obviousness cannot be established by attacking references individually where the rejection is based upon the

teachings of a combination of references." *In re Merck & Co., Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986).

B. Analysis

The question common to all of the Examiner's rejections is whether it would have been obvious to substitute *non*-numeric indicia for the numeric indicia used by Chishti to indicate the order of use of the dental appliances. Appellant's patentability arguments fall into three main groups, essentially based on the type of non-numeric indicia disclosed by the secondary references Klein (framework with alpha-numeric indicia), Klatt (stacked dispenser), and Wong (color coded indicia and functional equivalents thereof).

1. Rejection based on Chishti and Klein

Appellant argues that neither Chishti nor Klein teach non-numeric indicia designating an order of use as recited in claim 19 (App. Br. 10-14). In particular, Appellant argues that Klein's disclosure of an "A-1-REG" coding is "non-numeric" and fails to convey any information designating order of use and, therefore, the rejection of claims 19-21 and 48 should be reversed (App. Br. 13-14).

Chishti teaches that either the appliances or their packaging "will be marked in some manner, typically by sequential numbering" to indicate their order of use (FF 2). Thus, while Chishti apparently prefers numbering, its disclosure is not limited to it. The disclosure of Klein is not limited to numeric markings either, but rather discloses "appropriate" markings (FF 4). Moreover, Klein suggests removing and using successive devices from its disclosed framework which carries the devices (FF 5). Therefore, persons of ordinary skill in the art would have reasonably understood that non-

numerical markings could be utilized to indicate the order of use of the dental appliances as suggested by Klein. The salient inquiry is what the combination of Chishti and Klein would have suggested to one of ordinary skill in the art. Thus, it is of no moment that the markings of Klein do not carry the precise information claimed, i.e., the order of use of the individual dental appliances, because the motivation to provide that information is taught by Chishti and the rejection is based on the combination of Chishti and Klein, not Chishti or Klein in isolation. *In re Merck & Co., Inc.*, 800 F.2d at 1097.

Therefore, we will sustain the rejection of claims 19-21 and 48 under § 103 based on the combined teachings of Chishti and Klein. Appellant has not provided any evidence of so-called secondary considerations which would lead us to a contrary conclusion.

2. Rejection based on Chishti and Klatt

Appellant argues that neither Chishti nor Klatt teach non-numeric indicia of order of use comprising "a package including a plurality of geometrically distinct dental appliances positioned in an arrangement within the package which indicates an order of usage," as recited in claim 27 and, therefore, the rejection of claims 27-29 should be reversed (App. Br. 14-17). In particular, Appellant argues that

[w]hile a particular order of use might be incidental once the blister cards are stacked and then consistently drawn from the bottom of the stack, no particular ordering or staking [sic, stacking] is taught by Klatt. In fact, as the blister cards of Klatt are identical, order of usage would be irrelevant to the system of Klatt. ... Thus, Klatt fails to teach geometrically distinct articles/appliances positioned in an arrangement

within the package, the positioning having
information which indicates an order of usage.
[App. Br. 15-16.]

Once again, Appellant focuses on the individual references rather than on what their combined teachings would have suggested to one of ordinary skill in the art, possessed with the understandings and knowledge reflected in the prior art and motivated by the general problem facing the inventor. Thus, we agree with the thrust of the Examiner's rejection that Klatt fairly suggests stacking items in the order of their use (FF 6) and that Chishti teaches indicating the order of use of geometrically distinct dental appliances by marking the appliances or their packaging (FF 1-2). In other words, it would have been obvious to use a package comprising (a) a plurality of geometrically distinct dental appliances disposed in a stack and arranged in order of their use and (b) a container having an access for removing the appliance lying at the bottom of the stack as suggested by Klatt based on the combined teachings of Chishti and Klatt motivated by Chishti's stated need to indicate the order of use of the appliances.

Therefore, we will sustain the rejection of claims 27-29 under § 103 based on the combined teachings of Chishti and Klatt. Appellant has not provided any evidence of so-called secondary considerations which would lead us to a contrary conclusion.

3. Rejections based on Chishti and Wong, alone or in further combination with Rohlcke, Martin, Morris and/or Bates

In essence, Appellant argues that Wong fails to teach or suggest using non-numeric indicia, i.e., color to indicate order of usage of items, i.e., orthodontic reamers, and none of Rohlcke, Martin, Morris, or Bates makes

up for this deficiency (App. Br. 17-25). In particular, Appellant argues that "[t]he mere fact that a practitioner may use progressively larger sized reamers in performing a root canal does not provide the teaching of using a color scheme as an indication for the order of usage" (App. Br. 18). Appellant further argues that merely providing alternative "indicia," such as the notches of Rohlcke, the bar codes of Martin, the radio frequency tags of Morris or the dissolvable dye of Bates remedy the deficiency in Wong (App. Br. 19-20, 22-23, 25). According to Appellant, the indicia of Wong, Rohlcke, Martin, Morris, and Bates provide unrelated information and fail to including any information whatsoever about order of use of anything (App. Br. 19-25).

Appellant does not disagree that non-numeric indicia is used to provide a breadth of different types of information. Rather, Appellant's arguments focus on the specific type of information provided by the individual indicia of Wong, Rohlcke, Martin, Morris, and Bates. However, it is well established that non-obviousness cannot be established by attacking references individually where the rejection is based upon the teachings of a combination of references. *In re Merck & Co., Inc.*, 800 F.2d at 1097. Here, the Examiner contends that it is well within ordinary skill in the art to use colors, numbers, bar codes, etc. as known functional equivalents to convey a desired type of information, i.e., order of usage (Ans. 9-11). Appellant has not provided evidence or arguments to the contrary under the facts of this case. Once again, Appellant fails to recognize that Chishti explicitly suggests using some type of marking, on either the distinct, individual dental appliances or their packaging, to indicate their order of use.

Therefore, we will sustain the rejections of claims 38-47 under § 103 based on the combined teachings of Chishti and Wong, alone or in further combination with Rohlcke, Martin, Morris and/or Bates. Appellant has not provided any evidence of so-called secondary considerations which would lead us to a contrary conclusion.

C. Conclusion

Appellant has failed to show that the Examiner erred in concluding (1) that non-numeric indicia is functionally equivalent to numeric indicia for purposes of indicating the order of use of dental appliances as disclosed by Chishti; (2) that the alpha-numeric indicia of Klein suggests the functional equivalence of numeric and non-numeric indicia; and (3) that packaging which dispenses identical articles in order as taught by Klatt suggests packaging which dispensing dental appliances in the order of their use as claimed.

IV. Order

Upon consideration of the record, and for the reasons given, it is ORDERED that the decision of the Examiner rejecting claims 19-21 and 48 as unpatentable under 35 U.S.C. § 103(a) over Chishti in view of Klein is AFFIRMED;

FURTHER ORDERED that the decision of the Examiner rejecting claims 27-29 as unpatentable under 35 U.S.C. § 103(a) over Chishti in view of Klatt is AFFIRMED;

FURTHER ORDERED that the decision of the Examiner rejecting claims 38 and 39 as unpatentable under 35 U.S.C. § 103(a) over Chishti in view of Wong and Rohlcke is AFFIRMED;

FURTHER ORDERED that the decision of the Examiner rejecting claims 40 and 41 as unpatentable under 35 U.S.C. § 103(a) over Chishti in view of Wong and Martin is AFFIRMED;

FURTHER ORDERED that the decision of the Examiner rejecting claims 42 and 43 as unpatentable under 35 U.S.C. § 103(a) over Chishti in view of Wong, Martin, and Morris is AFFIRMED;

FURTHER ORDERED that the decision of the Examiner rejecting claims 44 and 47 as unpatentable under 35 U.S.C. § 103(a) over Chishti in view of Wong is AFFIRMED;

FURTHER ORDERED that the decision of the Examiner rejecting claims 45 and 46 as unpatentable under 35 U.S.C. § 103(a) over Chishti in view of Wong and Bates is AFFIRMED; and,

FURTHER ORDERED that no time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

sss

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